

REMARKS

This Amendment is in response to the Official Action dated September 23, 2003. In that Official Action, Claims 51, 52, 88 and 89 were allowed. These claims have, it will be noted from the foregoing listing of claims, been continued in this Amendment. Claims 58-62, 64-67, 70, 74, 75, 77-84, 86 and 94-96 were objected to, but considered allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Such claims, with minor editing, constitute the new Claims 97-120 in this Amendment. New Claims 121-138 are based on rejected Claims 53-57, 63, 68, 69, 71-73, 75, 85, 87 and 90-93. Of these claims only Claims 121 and 135 are independent claims. The remaining dependent claims, with minor editing, are based on the rejected dependent claims. Claim 121 which is based on cancelled Claim 53, is now directed to a stress measuring device which comprises at least two separate sensors. One of such sensors is located in a milking compartment and the other sensor is at a location remote from the milking compartment. Independent Claim 135 is based on a milking process claim, now cancelled, No. 90. As modified, Claim 135 is directed to the process of measuring the milking of a milk producing animal while being milked and also measuring the stress in the milk producing animal before it is milked. In all of the rejected claims, the stress being measured is a "relatively momentarily stress" of the animal. The reason for measuring such stress is in general to use that information for the purpose of reducing the stress and thereby increasing the yield and quality of the milk produced by the milk producing animal concerned.

The invention of this Application is directed to an apparatus and method of increasing the yield and quality of milk produced by a milk producing animal such as a cow. This is accomplished by ascertaining and measuring the effects of stress from various sources on individual animals. Such effects may vary from animal to animal, but for the animals so effected

the stresses can have adverse consequences on the quantity and quality of milk produced by such animals. Accordingly, by using the knowledge so obtained of those stresses which have caused particular animals to produce less milk or milk of lesser quality, or both, it is often possible to reduce such stresses or, in cases where it is found that the stresses actually increase the quantity and quality of milk from a particular animal to utilize same favorably.

In the cited references it is correctly pointed out that physiological changes in an animal being milked may be evidence that the animal is ill or is in heat. To differentiate these physiological changes from the physiological and behavior changes or stresses which are relevant to the instant invention, the stresses involved have in the instant Application been termed "relatively momentary stresses." As previously pointed out in the prosecution of this Application, similar terminology "momentary measured values" of the stresses is spelled out in the Specification, as filed. Stresses due to an animal being ill or in heat or having mastitis which are disclosed in the prior art are substantially different in degree and can hardly be considered as relatively momentary stresses. Indeed they are not described as "stresses" as such. Therefore the instant invention is directed towards determining what relatively momentary stresses cause milk producing animals such as cows to produce milk in less quantity and quality than anticipated and then to remove or otherwise lessen or neutralize the cause of the stresses. Also, of course, as indicated above, in some cases the relatively momentary stresses can be utilized to increase the quantity and quality of the milk being produced. Different relatively momentary stresses and the extent of such stresses have unlike effects on different milk producing animals. Hence, an important aspect of the invention is to discover the stresses and degrees thereof which affect different milk producing animals and then to tailor the remedies to such animals for the purpose

of increasing the quantity and quality of their milk insofar as this can be accomplished as a practical matter.

In the Official Action of September 23, 2003, the Examiner takes the position on page 3 that stress as defined in Applicants' Specification and as commonly defined as a physical, chemical or emotional factor that causes bodily or mental tension to alter an existing equilibrium and this is a factor that is measured in both the van der Lely and the Mottram et al references, whereby cancelled Claims 53 and 90 were not considered allowable. Applicants respectfully disagree with this summation of the Specification. Not only is the terminology "momentarily measured value" of a stress parameter mentioned a number of times in the Specification, but also the terminology "degree of stress" and "stress management" are often to be found. The prior art is interested in and teaches primarily that the sensing of "stress" as such can be important for reasons such as determining whether the animal is ill, in heat or has mastitis. In contrast, the inventors herein are measuring stress to determine its degree or "momentary measured value" for the purpose of applying "stress management." In other words, the prior art teaches that the detection of "stress" in an animal is important to determine an internal condition of the animal; that is: the animal is sick or in heat or suffering from mastitis. In the instant invention, the inventors are measuring stress in an animal caused by conditions external to the animal in order, for the most part, to reduce or eliminate the stress causing factor and, as an end result, to improve the quantity and quality of the milk produced from the animal.

The blood pressure of some people is increased due merely to a psychological reaction to having their blood pressure taken, but because their blood pressure is somewhat high does not mean that they are suffering from hypertension. Medical doctors are well aware of this phenomena and will often ask the person involved to relax for a while to eliminate or at least

attenuate the reaction. If the blood pressure is reduced significantly, then the medical doctor may conclude that the earlier high blood pressure reading was psychological rather than pathological. The high blood pressure reading were due to the act of taking the patient's blood pressure and could be reduced by causing the patient to rest for a while -- thus causing the patient to relax whereby more nearly accurate blood pressure readings could be taken. In the prior art, the sensors are used to ascertain objective medical conditions of the animal being milked. In the instant Application, the sensors seek to measure the degree of stress as subjectively experienced by the animal being milked. Although the differences between the instant invention and the prior art may seem subtle; they certainly are not trivial. Another perspective is that the objectives of the instant invention and the prior art are quite distinct. The ultimate object of the instant invention is to manage the stress to which the milk producing animals are subjected whereby the milk which they produce is greater in quantity and higher in quality. The objective of the prior art is directed primarily to the health of the milk producing animals and ultimately directed to efficiently and effectively maintaining the health of the herds. The end result is, of course, also a greater quantity and quality of milk. But different means are used to obtain same. Further, the execution of the invention will seldom require the services of a veterinarian. In contrast, the conditions sensed by sensors in the prior art frequently require a veterinarian's services. The inventors, of course, do not in any sense foreclose the need for veterinarian services or otherwise to maintain the health of the herd in individual milk producing animals. Unquestionably there is an overlap in the type of sensors to be used with the instant invention and the prior art. However, the prior art is primarily concerned with threshold values whereas the measurements provided by sensors used in the invention the instant invention primarily concern scalar measurements, that is it the existence and magnitude of the stress which is measured rather than

a particular threshold value. Yet further, the prior art seeks to diagnose medical conditions which are likely to be suffered at one time or another by every member of the herd such as illness, being in heat, or mastitis and which, in a sense, is a temporary condition. On the other hand, the invention is directed to members of the herd on a much more individualized basis. Here, they are looking for particular circumstances such as features or events which cause stress in an individual milk producing animal although the same circumstances may cause no or minimal stress in other milk producing animals of the herd.

In the Official action, Claims 53-57, 68, 69, 71-73, 76, 85 and 87 which correspond in new Claims 121-125, 127, 128, 129, 131, 132, 133 and 134, were rejected under 35 U.S.C. §102 as being anticipated by U.S. Patent No. 5,816,190, which issued October 6, 1998, to van der Lely. It is stated that this reference discloses an apparatus for milking animals provided with a milk compartment having a medical instrument 36 by means of which the blood pressure, the heartbeat, the temperature, etc. (all considered to be milk related data in that they are conditions of the milk cow) of an animal can be determined, each such parameter being indicators of stress. It is also stated that the data can be collected while the animal is in the milking compartment and the data is transmitted to a computer with a memory where the physical state of individual animals can be stored so that historical data can be collected. When a parameter measured by the instrument deviates from an average value inputted into the computer, this is printed on an attention list to alert or signal the dairy farmer to inspect the animal. The computer printout is considered to be an alarm means. It is also stated that the device is suitable for and adapted to measure the data before, during and after milking depending when one wishes to examine the animal and that the instrument provides output data indicative of specific conditions of the animal. Yet further, the apparatus comprises an animal identification system.

The conclusion that the sensor can selectively be placed in locations other than the milking compartment is not disclosed in the van der Lely reference. Instead, it is submitted, that they were suggested from the disclosure of the instant invention. In the van der Lely reference, it is the "milking compartment" that comprises "one or more sensors." (See column 3, lines 65-67). Moreover, the reference teaches that it is the animal's physical state which is being sensed in the milking compartment and when a threshold value is exceeded, then the dairy farmer's attention is drawn to the fact that with a specific animal there has been ascertained a defect of the legs. (See column 4, lines 11-14).

In addition, the reference teaches that during milking the heartbeat, the blood pressure and the temperature of the animal are measured by means of medical instrument 36 and compared with an average value previously inputted for each animal in the corresponding parameter. When the aforementioned parameter deviates too much from the average value, this is printed on an attention list to alert the farmer that he should inspect the animal or consult a veterinarian. (See column 6, lines 64 through column 7, line 4). In the paragraph in column 3, lines 24-37, it is stated that in a preferred embodiment the milking compartment comprises a medical instrument by means of which the heartbeat, the temperature, the blood pressure, etc. of the animal can be measured while the animal is in the milking compartment and the data supplied to a computer. With aid of such parameters, the physical state of the animal can be kept up to date in the computer. When a parameter measured by the medical instrument deviates from an average value inputted in the computer for the aforementioned parameters, then the dairy farmer's attention is drawn thereto by means such as a print-out of a computer. A deviation from the above mentioned parameters can be an indication to the dairy farmer that the animal is "ill or in heat."

Accordingly, the van der Lely reference is quite specific in that the medical instruments make their measurements while the milk producing animal is in the milking compartment. Moreover, this makes sense inasmuch such as medical instruments that measure temperature, blood pressure and heartbeat of an animal are best performed while the animal is in the milking compartment and therefore relatively motionless for a sufficient period of time for the requisite medical procedures to be completed.

The rejection of Claim 53, and therefore claims dependent thereon under 35 U.S.C. §102 is, in any event, inappropriate because the claim requires a stress measuring device that determines the degree of "relatively momentary stress" of the animal before and during the milking process. It is unlikely that any stress which is measured by medical instrument 36 is, in the circumstances set forth in the van der Lely reference "relatively momentary stress." This is because the heartbeat, blood pressure and temperature of the animal so measured is compared with an average value previously inputted for each animal for the corresponding parameter. Moreover, a complete reading of the reference is indicative that the milk compartment is made as pleasant for the milk producing animal as reasonably practicable. Accordingly, if the animal is stressed by being in the milking compartment and milked at the same time, it is likely that this would have been detected in earlier milkings and thus incorporated in the average value previously inputted for the animal concerned for the corresponding parameter. Hence, it is unlikely that being in the compartment and being milked would cause instrument 36 to receive a false relatively momentary stress, but something else such as a defect in the milking process or a loud external noise, or the like. Moreover, there is no substantive evidence in the reference that the relatively momentary stress would be detected by a stress measuring device before the milking process because the reference does not teach that any such measurements be made other

than in the milking compartment. Therefore the van der Lely reference does not read on original Claim 53 and cannot be anticipated under 35 U.S.C. §102.

Irrespective of the foregoing, new Claim 121 which is based on cancelled Claim 53 sets forth in explicit language what was implicit in the word "before" in cancelled Claim 53. Accordingly, it is set forth in Claim 121 that there are at least two sensors, one of which is at the milking compartment and the other of which senses the existence of relatively momentary stress at a location remote from the milking compartment.

Inasmuch as Claim 53 is not anticipated under 35 U.S.C. §102, clearly this also applies to all of the claims dependent thereon including the new Claims 122-133. Incidentally, it will be noted that new Claim 124 which is based on cancelled Claim 56 has been further amended to meet the objection thereto under 35 U.S.C. §112 by providing therein an antecedent for "each milk quarter."

Claims 90, 92 and 93 were rejected under 35 U.S.C. §102 as being anticipated by the van der Lely reference discussed above. These claims are process claims and new Claims 134, 136 and 137 are based thereon. The rejection under 35 U.S.C. §102 of Claim 90 suffers from the same defect as that which was applied to original Claim 53. New Claim 135 which is based on cancelled Claim 90 has been amended to indicate that the measurement of the degree of relatively momentary stress takes place twice, once before the milking has commenced of the animal concerned, and then again as the animal is being milked. The van der Lely reference simply does not teach either Claim 90 or new Claim 135 which replaces now cancelled Claim 90.

On page 4, paragraph 7, Claims 53-57, 63, 71-73, 76 and 85 were rejected under 35 U.S.C. §103 on the basis of U.S. Patent No. 5,697,326, to Mottram et al, in view of U.S. Patent

No. 5,873,323, to van den Berg et al. The rejected claims are cancelled without prejudice and new Claims 121-125, 126, 129-131, 132 and 133 are based thereon. The only independent claim is Claim 131 which is essentially the same as cancelled Claim 53 with, however, clarifying amendments to set forth explicitly what was implicit in original Claim 53. In the Official Action commencing on page 5, the Examining Attorney states that Mottram et al disclose a device which is capable for use in conjunction with a milking apparatus inasmuch as the apparatus may be fixed to a milking stall for routine testing and the examination may be applied when an animal presents itself for milking. It is further characterized in that the device is provided with a stress measuring device in the form of an olfactory sensor which samples odors from the animal's teats or exhaled breath from the animal's nostrils to identify specific aspects of the animal's condition. It is also stated that, therefore, the device is capable of determining the degree of stress of an animal and supplying the stress measurement data to a storage device wherein the device is suitable for and adapted to measure the data before, during and after milking depending upon when one wishes to examine the animal, the sensor providing output data indicative of specific conditions of the animal. Concerning the van den Berg et al reference, it is stated in the Official Action that this teaches a method of milking animals automatically while determining their physiological condition. It is further stated that this can include a sensor that works in conjunction with a computer that records and compares the data with other stored values (i.e. correspondence table), the results of the comparison being indicative of a physiological condition of the animal. It is yet further stated that although it is not disclosed that the device of Mottram et al itself stores data, it would have been obvious to one of ordinary skill in the art at the time the invention was made to configure the electric circuitry of the device to record the sensor

results as taught by van den Berg et al in order to develop a pattern of historical data which could be helpful in the treatment or utilization of the animal.

As stated before, the relatively momentary stress which is utilized in the instant invention tends to be unique individually to milk producing animals in a herd. In other words, relatively momentary stress may occur for only one or a few members of the herd based on a particular cause. Also how much stress results from a particular cause requires how the animal has reacted in the past not only to that cause as well as to other causes which have may resulted, in the animal concerned, in virtually zero measurements of relatively momentary stress. Thus the sensing and measuring of the relatively momentary stresses in each animal from more than one potential cause is important and this operation is therefore included in new Claim 121 as it was in cancelled Claim 53.

There is nothing in the Mottram et al reference to indicate that their electronic nose was intended to provide data of an animal's degree of relatively momentary stress and, indeed, it leads away from doing so during the milking of the animal. Nor does the reference teach transmitting any data whatsoever from the electronic nose to store in a computer as a measurement of anything, much less the animal's degree of relatively momentary stress experienced by the animal incidental to the milking process and, as indicated above, it leads away from doing so during milking. For a rejection under 35 U.S.C. §103 to stand, there is a requirement that the prior art suggests the combination which the Patent Examiner has applied in an Official Action. This has not been done and there is no logical reason to conclude that the Mottram et al reference does so implicitly. As has been stated on many occasions, virtually all inventions are combinations of old elements. Therefore a Patent Examiner may often find every element of a claimed invention in the prior art. However, if identification of each claimed

element in the prior art were sufficient to negate patentability, very few patents would ever issue. Furthermore, rejecting patents solely by finding prior art corollaries for the claimed invention would permit an Examiner to use the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention. It is respectfully suggested that this may have occurred in the Official Action under consideration. Certainly there is no suggestion in the prior art as such for making the combination set forth in the Official Action. Moreover, it is now accepted patent law that the suggestion to combine requirement stands as a critical safeguard against hindsight analysis and rote application of the legal test for obviousness. In view of the foregoing, it is submitted that the Mottram et al reference not only leads away from the invention of original Claim 53, but it also fails to lead towards any combination of same with the van den Berg et al reference.

Moreover, it is to be noted that the latter reference deals with one or more sensors in the line system from a teat cup down to the location where the milk lines from the teat cups join including a vacuum-sensitive sensor, a flow-sensitive sensor, a temperature sensitive sensor, an electrical conductivity sensor, or a combination thereof. Accordingly, it will be appreciated that the apparatus disclosed in the van den Berg et al reference relates to the milk, as such, albeit it also teaches that illness or heat can be detected from the apparatus. But these parameters are not relatively momentary stresses as such. Basically the van den Berg et al reference is directed towards, as is the van der Lely reference, making a determination that the particular milk producing animal may be in heat or ill or have mastitis and the diversion of unwholesome milk at least insofar as the van den Berg et al reference teaches. Furthermore, even if the combining of Mottram et al with van den Berg et al were proper, still the combination of references fail to

teach the elements of new Claim 121 because not only do they fail to teach an apparatus for measuring relatively momentary stress, but also two measuring devices for doing so.

On page 5, paragraph 8, of the Official Action, Claim 91 was rejected under 35 U.S.C. §103 as being unpatentable over the van der Lely reference. It is stated that although van der Lely discloses the measuring of stress related data which occurs in a milking compartment during the milking process, it would have been obvious to one skilled in the art at the time the invention was made also to measure the parameters before and after the milking to compare values, confirm the accuracy of the values if a value is outside of a particular range or for the purpose of historical data collection. However, even when the allegation of obviousness is based on a single prior art reference, there still must be a showing of a suggestion or motivation to modify the teachings of that reference, which certainly does not exist in this case. In addition, unless one is seeking relatively momentary stress values, the nature of the problem to which the van der Lely reference is directed and that of the instant invention are, in fact, quite distinct as discussed above.

In rewriting allowed dependent claims as independent claims, there are now a total of twenty-one (21) independent claims or, in other words, eighteen (18) claims upon which a fee of \$44.00 for each claim is required. However, the total number of claims remains at forty-six (46). Accordingly, it appears that an additional fee of \$792.00 is required and our check to cover same is submitted herewith. If this is in error, the Commissioner of Patents and Trademarks is authorized to credit or debit our Account No. 13-2000 as appropriate.

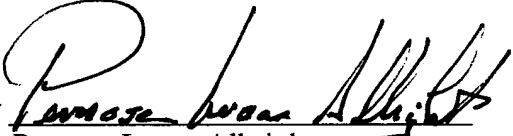
Further consideration and reexamination of this Application, in its amended form, is requested in view of 35 U.S.C. §132 and regulations in implementation thereof. The Application in its amended form is, it is submitted, free from ambiguity and avoids the references of record.

It is further submitted the Examiner should have no difficulty in finding that the differences between the subject matter sought to be patented in this Application and prior art and usage within her expert knowledge are such that the subject matter as a whole would not have been obvious at the time the invention was made to persons having ordinary skill in the art to which the subject matter of this Application pertains.

In view of the foregoing, the allowance of claims as now presented is earnestly solicited.

Respectfully submitted,

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Filed: October 27, 2004